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SLEEP DISTURBANCE, DEPRESSION AND SUICIDE

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ABSTRACT

The risk of suicide in any mentally ill or hospitalized patient is of obvious over-riding concern to those involved with his treatment and management. Epidemiological studies have defined in broad terms groups of persons who have a high statistical probability of suicide, while numerous clinical studies have attempted to define more precisely those who fall into the high risk category.

The present study also seeks a clue of predictive value and concentrates upon the relationship of sleep disturbance to suicide.

I

Previous Studies on Suicide

AGE:

Suicide is one of the leading causes of death in young adulthood. Warning signals are particularly difficult to recognize, since symptomatology varies widely in different age groups and developmental levels. In some young adults, for example, rule-breaking behavior or rebelliousness is sometimes the only symptom. For others, previously existing "character traits" -- especially passivity and dependency -- are intensified. In small children one may see tantrums, fears, nightmares, crying spells and anorexia.

MARITAL STATUS:

Statistical analysis of precipitating factors for suicide point to bereavement and separation. The potentially hazardous situation is reflected by an impressively high rate of suicide in the recently divorced and separated.

DIAGNOSES:

The Addictions.

There is a seventy-five to eighty-five fold increase in suicidal rate of alcoholics, and the incidence is similar in other addictions. Doctors, dentists, and attorneys also run a higher risk of suicide, which is thought to be a function, in part, of self-medication, rather than occupation per se.

DEPRESSION:

The "depressed" patient automatically carries the risk of suicide. Various studies have sought to asses this risk on the basis of differences between neurotic and psychotic processes, but they found no prognostic clues.

DISCUSSION:

The depressive syndrome itself is poorly delineated. Unless the patient is delusional, and in the "typical" age group, the frequency with which the psychotic or neurotic label will be attached to the presenting symptomatology merely reflects the value system of the institution. Indeed neither the patient's subjective report of discomfort nor the examination performed by the clinician provides an accurate measure of severity. Depressed patients may be separated into a "hospitalized" or "non-hospitalized" group, but even

such a division is arbitrary; it describes the setting in which treatment takes place; it is not an index of severity.

Although much has been written about the suicidal hazards of depression, these hazards are not unique to depression and may occur in other psychotic and neurotic reactions, organic disorders, and character disorders with the attempt or gesture colored in each case by the underlying disorder. The person with a disturbance of impulse control may attempt suicide when he feels that his problems can no longer be fruitfully discussed with anyone and when meaningful human relationships seem to be disintegrating. The immature personality can withstand little depression and frustration before rebeling in a suicidal act.

There have been many dynamic formulations of the suicidal act, but these are of no predictive value. Clinically, it may be better to interpret suicide as a symptomatic act rather than a discrete entity and to look for some of the potential warning signals. Self-deprecatory ideas, severe hypochondriasis or somatic delusions, suicidal ruminations, and previous suicidal attempts are all of great clinical significance. A

family history of suicide may be important as a sign either of a constitutional depressive trend or of a family method of resolving conflict or psychic discomfort. Family dynamics must also be taken into account in assessing the patients suicidal potential. The responsiveness of the environment, the ability of those taking care of the patient to recognize a real threat, and the credibility of the suicidal communications must all be kept in mind.

In assessing past actions, the usual distinction between a serious attempt and a manipulative gesture, may be irrelevant, since even a gesture reflects the patients' immaturity and inability to respond to life's stressful situations in a rational way. Furthermore, if this appeal for help is not heeded, the patient may feel stranded and pushed toward more serious and perhaps successful attempts.

II

Previous Studies on Sleep Disturbances

Early studies focused upon the physiological changes accompanying sleep (Main and Richardson 1953; Macleod 1941), but the essential nature of the sleep process itself remained an enigma; in spite of voluminous studies on physiological concomitants, this uniquely reversible unconsciousness had no better definition than "the absence of awareness" (Ingram in Field 1960) until quite recently. Changes accompanying sleep principally involve the vital functions: heart rate, respiration, muscle tone, temperature regulation and the level of consciousness itself, all of which vary with some regularity in relation to the twenty-four hour sleeping - waking cycle. (Houssay et al. 1955; Burns 1959; Kleitman 1954). Such phasic changes persist throughout sleep deprivation (Murray, Williams, Harold and Lubin 1958; Kleitman 1939); subjectively, the feeling of fatigue and the yearning sleep become most irristible with the onset of customary bedtime hours and ameliorate during the afternoon and early evening (Patrick and Gilbert 1896).

EFFECTS OF SLEEP DEPRIVATION:

Paradoxically, the search for significant data on sleep inspired experiments in which large numbers of individuals were induced to remain awake. This, of course, reflects the difficulties in investigating a physiologic state which inconveniently changes its nature under the duress of the experimental procedure. In any case, sleep deprivation is now viewed as a convenient and usually reversible method of disorganizing mental function (West, Janszen, Lester and Cornelisoon 1962).

There is general agreement that major changes in mental functioning are virtually absent within the first 24 hours of vigil, but become detectable at about 36 hours and then increase to a critical point of some 100 hours, when psychosis is "regularly" produced (West, Janszen, Lester and Cornelisoon 1962). In the first 24 hours, alertness and voluntary movement decline, although they are amenable to correction by conscious effort. Thereafter, muscular activity becomes coarsely coordinated and, at rest, tremors appear. Tremulousness accentuates by the end of the third 24 hour period. The involvement of ocular muscles may account for the fleeting illusions of movement perceived in the peripheral

visual fields. At about this time objects throughout the field of vision may appear to oscillate or dissolve into various minuscular or geometric patterns. A blunting of touch and proprioceptive sense becomes noticable. With the passage of 100 hours of insomnia, however, impairment of insight and reality testing may be anticipated. Hallucinations of sight and hearing make their appearance, transiently at first, then becoming more sustained. With the continued retreat of insight, florid delusional elements, grandiose as well as persecutory, make their appearance. Behavior becomes more inordinate and conduct is now governed by hallucinatory or delusional percepts. Even amidst this syndrome of disorganized mental functioning however, the previously described twenty-four hour rhythm of sleep and wakefulness is still discernible. Thus the night may bring episodes of intellectual confusion and spatio-temporal disorientation, while during the day, some semblances of vigilance still operate and behavior is more likely to be characterized by a staring and suspicious torpor.

Recently West has drawn attention to a "typical" psychosis of sleep deprivation, claiming that the culminating syndrome is of similar outward appearance in most subjects.

Descriptions of spectacular sleep loss have been given by Katz and Landis (Arch. Neur. Psych. 1935), Brauchi and West (JAMA 1959), and Luby et al. (Ann. N.Y. Acad. Sci. 1962), the subjects having endured more than seven days and nights of unrelieved wakefulness. Although most subjects recover after sleep in excess of twelve hours, there have been some reports of persisting disorganization (Brauchi and West 1959). Paranoid thinking and subjectively experienced intellectual impairment have been described for periods of four weeks, or even months. In one subject some personality dysfunction was documented for several months subsequently, although he was known to have received psychiatric attention some years prior to the experiment. Brauchi and West (JAMA 1959) in a study of the effects of sleep deprivation on social behavior, Murray et al. (J. of Soc. Psychol. 1959), noted that his subjects tended to change restlessly from one activity to another, and while hobbies and crafts decreased, there was an overall increase in social conversation of a listless character. He regards these observations as indicating that the subjects avoided situations likely to promote drowsiness and preferred efforts or physical activities likely to maintain wakefulness.

Emotional lability (Tyler 1955) and irritability (Kleitman 1939; Williams et al. 1959) have been discussed in sleep deprived individuals and are clinical commonplaces. In contrast, others have commented upon the intactness of intellectual functioning in the presence of severe sleep loss (Schein 1957; Edwards 1941; Warren and Clark 1937). EEG techniques have subsequently shown that with increasing sleep deprivation, "blocks", "lapses", and "microsleeps", make their appearance in the non-sleeping individual and these may serve some restorative or homeostatic function (Bjerner 1949; Williams, Lubin, and Goodnow 1959).

The EEG has also been used extensively in the investigations of sleep deprivation effects. Tyler et al. (1947) compared control tracings with those obtained after 50, 75, and 100 hours of sleeplessness in twelve young adults. There appeared to be a steady increase in the frequency of brain potentials up to about 75 hours of experimental insomnia. The authors noted that such changes in frequency were similar to those produced by mental effort as, for example, in the solution of a multiplication problem. No reliable changes occurred in the first 24 hours and no appreciable changes until after 50 hours of sleep loss.

Rodin et al. (1962) reported an unexpected finding in five subjects, namely, the presence of high voltage diffuse "paroxysmal" activity in one second bursts occurring 4 to 10 times during a 15 minute recording sission. These appeared mainly in the 24 hour and 48 hour samples. It was unrelated to drowsiness since it was absent in the 96 hour and 120 hour records when the subjects were more drowsy. It was not facilitated by hyperventilation or photic stimulation. Of the five subjects showing this activity, one had similar findings prior to sleep deprivation, three had slightly dysrhythmic control records and one had a normal EEG. This response was interpreted as suggesting that sleep deprivation is initially associated with increased cerebral irritability, limited to approximately the first 48 hours.

Overall, the studies on the effect of sustained sleep loss on the EEG emphasize individual differences and suggest that some of the persisting ambiguity and unexpected findings in this and related fields may be due to the small number of cases documented. Thus far it appears that there is some increased cerebral irritability in the first 48 hours of sleep loss, which may produce clinical symptomatology in susceptible individuals. There is also a progressive decrease in performance of sensory-motor type, which may be related to

changes in EEG frequencies. (Williams et al. 1959; Williams et al. 1962).

SLEEP DISTURBANCE IN PSYCHIATRIC PATIENTS:

The role of sleep loss as a causal or aggravating agent in mental illness has received relatively little attention. Diaz-Guerrero et al.(1946) were the first to apply EEG techniques to investigate sleep in patients with manic-depressive psychosis. By taking continuous EEG recordings throughout the night they compared six adult patients in the depressive phase of their illness with normal controls. They observed that the depressed patients spent nearly twice as much time in the night in states of dozing or very light sleep and enjoyed about half as much moderate and deep sleep. By studying the minute-to-minute changes in the EEG patterns it appeared that the depth of sleep fluctuated significantly more frequently in the patient group, and their sleep showed an overall impairment in both duration and continuity of depth. Interestingly, however, even though the patients took nearly twice as long to fall asleep their initial deep sleep remained relatively intact.

Koranyi et al. (1960) subjected six chronic schizophrenic patients to one hundred hours of consecutive wakefulness and noted a progressive deterioration after the third day, so that five of the six subjects appeared

to reproduce the acute psychotic picture which had been recorded at the time of their original admission to the hospital. Bliss et al. (1959) found that sleep loss doubled the psychoto-mimetic potential of LSD-25. The author suggested that sleep deprivation, when combined with isolation and severe anxiety, may indeed be a critical factor in psychotic disorganization and he remarked that schizophrenic episodes are sometimes preceded by prolonged insomnia.

The long held view on distinct sleep disturbance in depressed patients with "early morning waking" has not received firm support from the more recent studies. In fact, Ladame (1923) was unable to distinguish the sleep disturbance of physical disease when compared with that of mental disease, and even less in the various forms of mental illness. Hinton (Patterns of Insomnia in Depressive States 1963) in a study of twenty-seven patients with endogenous depression and of seven patients with reactive depression, failed to distinguish an exclusive pattern of sleep loss. He found that the more severely depressed patients lost more sleep in the later part of the night, as did depressed patients with mental agitation. Interestingly, the presence of guilt or hopelessness correlated with less sleep impairment.

Attempts have been made to differentiate psychiatric

syndromes especially the depressive states by techniques employing experimentally induced drowsiness or sleep. Shagass (1954; 1956; 1959) approached this problem by measuring the amounts of hypnotic required to induce sleep on the assumption that depression was a central inhibitory process, the degree of which should correlate with the intensity of the depression. Martin and Davies (1962) could not confirm Shagass' findings and found no significant correlation between the sleep threshold, the clinical ratings of depression and the personality scores derived from the MPI and the MAS.

The majority of psychiatric textbooks, selected from the principal languages of the world, have relatively little to say of sleep in mental illness. Early morning awakening is regarded as a fundamental symptom of depression and is commonly contrasted with the difficulty in falling asleep, which is reported to be characteristic of neurotic anxiety. It has even been suggested that the combination of depression and anxiety will be reflected in a nice combination of both sleep disturbances.

The discussion of sleep disturbance is frequently dismissed in a single sentence, sometimes reduced to the mention of a single word "insomnia". In some textbooks, even the classic association of depressive mood and sleep disturbance is ignored. The appearance of increased

dream activity, and especially nightmares, is superstitiously regarded as an ominous sign of disturbed homeostatis. More identical statements are reproduced throughout the psychiatric literature in the discussion of organic brain syndromes. For instance, sleep reversal following encephalitis or displayed in catatonic excitement, the paradoxic response of the young and elderly to barbiturate sedation and the prodromal insomnia of toxic delirious states. Mention will be found of the diagnostic value of somnolence in space occupying lesions, narcolepsy in its primary and secondary forms, and various states of nutritional or endocrine insufficiency syndromes.

In contrast to such scattered and unclassified comments on sleep disturbances, one of the most pertinent summaries was contained in a textbook of general medicine (Harrison 1958); Adams devotes a separate section to the subject of sleep disturbance and subdivides this into accounts of the physiology, etiology, and treatment, along with a discussion of useful clinical cues. A good account of sleep disorder in depressed patients was given by Ayd (1961) and another in a small educational monograph distributed by a pharmaceutical company. It is obvious from Ayd's account that the patterns of sleep disorder are more diverse, and are much greater and of

more clinical utility than the conventional sparse accounts would indicate. He points out that the depressed patient may have difficulty falling asleep, may have broken sleep, may even have hypersomnia, as well as the traditional early morning awakening after unrefreshing and not mere disturbed slumber. In fact some of the differences in patterns of sleep disturbance in relation to age and sex, as well as their changes and productive value in the relation to the stage of the depressive illness.

Weiss et al. (1962) compared the sleep habits of 108 psychiatric outpatients, 101 medically ill outpatients, and 110 military subjects with no known psychiatric or medical disabilities. Seventy-two per cent of the psychiatric patients reported sleep disturbance, in contrast to eighteen percent of the medical and military samples suggesting that the questionnaire on sleep habits clearly differentiated the psychiatric from the non-psychiatric subjects. Weiss (1962), as well as McGhie and Russell (1962), found that sleep was more disturbed in the lower socio-economic groups, thus refuting one of our popular beliefs.

III

A Clinical Study

MATERIALS AND METHODS:

In attempting to clarify the interrelationships among sleep disturbances, suicidal acts, and depression, we studied 150 acute admissions to the three Connecticut state mental hospitals, and one university-affiliated, community-oriented facility during a two month period. Arrangements were made to interview all the patients entering these hospitals for attempted suicide within one week of their admission and an equal number of randomly-selected, non-suicidal admissions as controls. No attempt was made to match the controls to the study group, since it was proposed to regard suicide as a symptom rather than a discrete nosological entity.

A short form questionnaire (see Appendix) was adapted from a longer sleep disturbance-depression inventory used by Detre and others in a pilot study. This is an open ended questionaire, designed to reveal relationships between sleeping disorders of any type and suicidal attempt. The questionnaire was administered individually to each patient, following which a symptom

check list was completed from the hospital record.

The information from each questionnaire was then coded (Appendix) and transferred to an IBM punch card. An IBM 709 was used to process the data, using the CHI square statistical test and the degree of freedom, for each relationship. The 2x2 tables also report the PHI coefficient and Kendall's Q statistic.

IV

Results

SUICIDE:

This study failed to show any significant correlations between suicidal attempts and the various sleep disorders (Table A). Hundreds of relationships comparing sleep pattern disorders to suicidal attempts were tested (Table B), but none were statistically important. There was also a lack of correlation between suicidal attempt and severe degrees of conceptual disorganization.

In marked contrast, was the high incidence of suicidal behavior in depressive patients, both those with a primary depressive diagnosis, and the depressed schizophrenic group. It was also observed that depressed patients who are taking sedative medications have a greater suicidal risk than those on other forms of therapy. Withdrawal, a common depressive symptom, was also seen in a large number of these patients.

The methods employed in the suicidal act were not appreciably related to either diagnosis, age, or marital status, but correlated well with intent. The

most popular methods were overdose of pills, usually tranquillizers or barbiturates, and wrist cutting. These were used most commonly by the group of patients whose action represented primarily a gesture, while those making more serious attempts tended to use a combination of methods or a single more life threatening device.

It was interesting to observe a greater than expected number of suicidal attempts in patients with decreased dream activity. These suicidal acts may represent a reaction to the "uneasiness" reported in patients deprived of normal dreams (Dement). Those patients with a history of suicidal attempt but no suicidal activity, were subject to an increased dream activity, mostly of an unpleasant nature.

SLEEP DISTURBANCES:

The results in Tables A and B show the striking interrelationships of the various sleep disorders. They seem to cluster into two groups, the first containing the disorders "difficulty falling asleep", "decreased soundness", and "awakening at night". The second group consists of "early morning waking", and is frequently found in those patients with intellectual impairment or physical illness.

"Difficulty falling asleep" is the most common

single disturbance, and usually the first to manifest itself. It was closely related to retardation and lack of initiative, two common signs of depression. This group experienced a high degree of unpleasant dream change, with a resulting increase in "awakening at night".

Patients with histories of chronic inability to sleep through the night exhibited aggressive behavior, hyperactivity, and hallucinations, a triad of symptomatology frequently found in schizophrenic patients.

Sleep disorder was not found to be significant in the character disorders, but when present, it was of acute onset. Although not treated with sedative medication, this group contained many alcoholics and drug addicts. We cannot be certain that a potential sleep disorder remained undetected because of the sedative effects of the addictive agent.

DEPRESSION:

Depressed patients had a higher incidence of both sleep disturbance and suicidal attempts than the non-depressed groups. The sleep disturbances were primarily "difficulty falling asleep", "decreased soundness", and "awakening at night". The relation to "early morning waking" was less significant. The psychotic and neurotic

depressions could not be distinguished on the basis of sleep pattern disorders.

The depressed patients were also noted to have a changed bedtime, either earlier or later than normal. Those going to bed earlier tried to "catch up" on lost sleep, while the patients retiring later hoped to exhaust themselves before trying to sleep.

A large percentage of the depressed patients were receiving medication for their sleeping problems either from their family physicians or psychiatrists. They tended to receive large amounts of sedative tranquillizers or sedatives, but when the symptom of hypochondriasis was present, they usually received anti-depressants.

V

Discussion

Other workers (Kleitman 1937; Williams etal. 1959) have shown that insomnia leads to progressive emotional lability, irritability, and the tendency to impulsive behavior. It would therefore seem reasonable to expect patients with sleep disturbances to have a higher rate of suicidal attempts, but this could not be documented from the study. An explanation may be found by correlating the "typical psychosis" (West) of prolonged sleep deprivation to our observations of decreased suicidal risk in severely disorganized patients, and thus conclude that sleep disturbance is not in itself an ominous prognostic sign of suicidal intent.

An interesting finding, deserving further study, is the decreased frequency of sleep disturbances in the character disorders, especially the alcoholic groups. However, when a disturbance is present, it is acute in onset, implying perhaps that these patients are not able to tolerate discomfort before seeking hospitalization. In contrast, the depressed patient frequently had a long history of sleep difficulties and is often maintained

on sedative medication before hospitalization is considered. Mention must be made of the increased incidence of suicidal attempts in these patients taking sedative medications. An effort should be made to determine whether this finding is an artifact due to the higher risk patients on medication, or to an increase in depressive affect resulting from the long term effects of sedation, with the suicidal attempts secondary to the increased mood disorder.

The high degree of correlation between sleep disturbances and depressions deserve further mention. Our study was unable to differentiate psychotic and neurotic depressions on the basis of sleep patterns. The standard textbook "early morning waking" in psychotic depression versus "difficulty falling asleep" in the neurotic patients was not confirmed. Rather, both depressive groups showed striking but indistinguishable changes consisting primarily of "difficulty falling asleep", "decreased soundness of sleep", and "awakening at night", with "early morning waking" a less significant correlation. Similar observations were recently recorded by Detre, Davis, and Spalding in a study of 145 patients.

In light of our failure to distinguish a separate sleep disorder in the various depressions, we feel that empirical but still unproven notions viewing "early

morning waking" as a pathognomic sign of psychotic depression should be reevaluated. It appears that insomnia is a poor prognostic indicator of suicidal potential, while severity of depression, regardless of the basic diagnostic categorization, is of the utmost importance.

SUMMARY:

One hundred fifty recently hospitalized psychiatric patients were interviewed in an attempt to discover the interrelationships of sleep disturbances to depression and suicidal attempts. Half the patients had made a recent suicidal attempt before admission, and the remainder consisted of randomly selected non suicidal controls.

The results showed an intimate association of all sleep disturbances to depression with no particular pattern of disturbances separating the psychotic from the neurotic depressions. No significant relations between sleep loss patterns, and suicidal attempts could be found even though hundreds of possible combinations were tested. Rather, severity of depression regardless of basic disorder, was found to be the most important prognostic signal of a potential suicidal act.

TABLE A

	Onset Sleep Disturbance	Bedtime Change	Diff. Fall Asleep	Sound Sleep	Sleep Thru Night
Onset Sleep Disturbance		2.6(2)	.2(1) P .07 Q .16	.4(1) P -.05 Q -.1	.0(1) P .05 Q .09
Bedtime Change			35.9(2) ***	10.0(2) **	18.9(2) ***
Difficulty Falling Asleep				20.0(1) P -.35 Q -.64 ***	25.2(1) P -.39 Q -.68 ***
Sound Sleep					41.4(1) P .54 Q .85 ***
Sleep Thru Night					
Night Waking					
Dream Freq. Change					
Dream Qual. Change					
Dreams Awaken					
Early Morn. Waking					
Naps					
Medication					
Suicide					

Results reported In CHI(Degree of Freedom)
P= PHI coefficient
Q= Kendall's statistic
***= 0.001
**= 0.01
*= 0.05

Night Waking	Dream Freq. Change	Dream Qual. Change	Dreams Awaken	Early Morn. Waking	Naps
.2(1) P -.03 Q -.06	8.4(4)	3.4(4)	1.4(1)	1.2(2)	.4(1)
14.6(2) **	13.9(8)	1.8(8)	1.4(2)	26(4) ***	3.1(2)
27(1) P .45 Q .74 ***	14.8(4) **	8.5(3) *	9.4(1) P -.24 Q -.56 **	8.6(2) (-) *	.3(1)
45(1) P -.54 Q -.86 ***	13.9(4)	4.9(4)	6.8(1) P .23 Q .52 **	6.6(2) *	.1(1)
133(1) P -.44 Q -.99 ***	19(4) ***	11.3(4) *	20(1) P .39 Q .80 ***	6.8(2) *	.0(1)
	22(4) ***	13.5(3) **	22.1(1) P -.38 Q -.79 ***	2.9(2)	.8(1)
		126(12) ***	39.3(4) ***	10.3(8)	2.7(4)
			43.1(3) ***	2.3(8)	5.3(4)
				.7(2)	.2(1)
					6.0(4)

Medication	SuicideAtt.	Depression	Concept Dis.	Diagnosis	
1.4(2)	3.4(8)	4.4(4)	0.6(4)	10.7(9)	Onset Sleep Disturbance
16.8(4) **	8.1(14)	27.9(8) ***	10.3(8)	27.4(18)	Bedtime Change
6.5(2) *	5.2(7)	21.6(4) (-) ***	9.7(4)	27(9) **	Difficulty Falling Asleep
7.2(2) *	6.8(8)	10.3(4) (+) *	7.3(4)	15.4(9)	Soundness Sleep
8.8(2) *	5.4(7)	10.2(4) (+) *	7.9(4)	15.0(9)	Sleep Thru Night
6.4(2) *	4.3(8)	7.2(4) (-)	9.2(4)	14.5(9)	Night Waking
15.0(8)	41.0(28)	22.7(16)	23.(16)	35.5(36)	Dream Freq. Change
1.7(8)	34.8(28)	15.7(12)	12.2(12)	29.1(32)	Dream Qual. Change
1.6(2)	13.9(7)	6.1(4)	4.7(4)	7.6(9)	Dreams Awaken
58(14)	10.3(8)	8.5(8)		21.7(8)	Early Morn. Waking
7.1(2) *	7.4(7)	4.4(4)		27.3(18)	Naps
	15.8(14)	25.8(8)	8.7(8)	71.2(72)	Medication
		35.1(32)	31.0(32)	71.2(72)	Suicide
			32.5(16)	113.4(36)	Depression
				145.1(36)	Concept. Disorde

Table B

Constant	Constant	Variable	CHI	Freedom	Significant
Suicide	Awakening	Soundness+	.7	2	-
Suicide	Awakening	Soundness-	1.8	2	-
Suicide	Ear.Morn.W.	Diff.F.A.+	6.3	4	-
Suicide	Ear,Morn.W.	Diff.F.A.-	2.3	4	-
Suicide	EAR.Morn.W	Soundness+	6.4	4	-
Suicide	Ear.Morn.W	Soundness-	2.0	4	-
Suicide	Awakening	Sleep T.N.+	1.4	2	-
Suicide	Awakening	Sleep T.N.-	2.4	2	-
Suicide	Ear.Morn.W.	Sleep T.N.+	2.8	4	-
Suicide	Ear.Morn.W.	Sleep T.N.-	2.4	4	-
Suicide	Ear.Morn.W.	Awakening+	2.3	4	-
Suicide	Ear.Morn.W.	Awakening-	1.7	4	-
Suicide	Diff.F.A.	Schiz.	1.1	2	-
Suicide	Diff.F.A.	Schiz-Affec. Psych.Depres.	2.6	2	-
Suicide	Diff.F.A.	Depression	1.7	2	-
Suicide	Diff.F.A.	Charact.Dis.	2.9	2	-
Suicide	Soundness	Schiz.	2.9	2	-
Suicide	Soundness	Schiz-Affec. Psych.Depress.	.8	2	-
Suicide	Soundness	Depression	1.0	2	-
Suicide	Soundness	Charact.Dis	.7	2	-
Suicide	Sleep T.N.	Schiz.	3.0	2	-
Suicide	Sleep T.N.	Schiz-Affec.	1.7	2	-
Suicide	Sleep T.N.	Depression	3.9	2	-
Suicide	Sleep T.N.	Charact.Dis	.4	2	-
Suicide	Awakening	Schiz.	.5	2	-
Suicide	Awakening	Schiz-Afect.	3.5	2	-
Suicide	Awakening	Depression	4.0	2	-
Suicide	Awakening	Charact.Dis	1.6	2	-
Suicide	Depression	Sed. Meds.	5.3	4	-
Suicide	Depression	Non Sed.Med.	9.2	4	-
Suicide	Depression	None	3.4	4	-

Suicide	Concept Dis	Sed. Meds	2.8	4	-
Suicide	Concept Dis	Non Sed.Med.	8.6	4	-
Suicide	Concept Dis	None	7.7	4	-
Suicide	Ear.Morn.W.	Severe Dep.	5.7	4	-
Suicide	Ear.Morn.W.	Mild Dep.	.24	4	-
Suicide	Ear.Morn.W.	None	3.3	4	-
Suicide	Awakening	Severe Dep.	.72	2	-
Suicide	Awakening	Mild Dep.	.5	2	-
Suicide	Awakening	None	.7	2	-
Suicide	Sleep T.N.	Severe Dep.	1.6	2	-
Suicide	Sleep T.N.	Mild Dep.	.5	2	-
Suicide	Sleep T.N..	None	1.5	2	-
Suicide	Soundness	Severe Dep.	3.1	2	-
Suicide	Soundness	Mild Dep.	1.3	2	-
Suicide	Soundness	None	1.4	2	-
Suicide	Diff. F.A.	Severe Dep.	.3	2	-
Suicide	Diff. F.A.	Mild Dep.	.7	2	-
Suicide	Diff.F.A.	None	1.3	2	-
Suicide	Bedtime Ch.	Severe Dep.	.4	4	-
Suicide	Bedtime Ch.	Mild Dep.	3.5	4	-
Suicide	Bedtime Ch.	None	1.1	4	-
Suicide	Type Onset	Severe Dep.	4.9	2	-
Suicide	Type Onset	Mild Dep.	1.6	2	-
Suicide	Type Onset	None	3.6	2	-
Suicide	Depression	Schiz.	15.0	4	+ .001
Suicide	Depression	Schiz-Affec	2.4	4	-
Suicide	Depression	Depression	8.1	4	-
Suicide	Depression	Charact.Dis.	6.4	4	-
Suicide	Concept Dis	Schiz.	.8	4	-
Suicide	Concept Dis	Schiz-Affect	7.6	4	-
Suicide	Concept Dis	Depression	4.2	4	-
Suicide	Concept Dis	Charact.Dis	6.4	4	-
Suicide	Medication	Severe Dep.	7.6	4	-
Suicide	Medication	Mild Dep.	.5	4	-
Suicide	Medication	None	5.4	4	-
Suicide	Medication	Concept Dis	11.7	4	+ .05
Suicide	Medication	Mild Con Dis	4.7	4	-
Suidide	Medication	None	1.6	4	-

Suicide	Medication	Schiz.	2.1	4	-
Suicide	Medication	Schiz-Affec	3.1	4	-
Suicide	Medication	Depression	6.5	4	-
Suicide	Medication	Charact Dis	4.1	4	-
Suicide	Medication	Sleep Ch +	4.9	4	-
Suicide	Medication	Sleep Ch -	4.6	4	-
Suicide	Diff. F.A.	Sleep Ch +	1.5	2	-
Suicide	Diff. F.A.	Sleep Ch -	1.5	2	-
Suicide	Soundness	Sleep Ch +	5.7	2	-
Suicide	Soundness	Sleep Ch -	.3	2	-
Suicide	Sleep T.N.	Sleep Ch +	2.1	2	-
Suicide	Sleep T.N.	Sleep Ch -	3.2	2	-
Suicide	Awakening	Sleep Ch +	1.0	2	-
Suicide	Awakening	Sleep Ch -	1.4	2	-
Suicide	Awakening	Concept Dis	.8	2	-
Suicide	Awakening	Mild Con Dis	1.1	2	-
Suicide	Awakening	None	.3	2	-
Suicide	Sleep T.N.	Concept Dis	.8	2	-
Suicide	Sleep T.N.	Mild	.1	2	-
Suicide	Sleep T.N.	None	.4	2	-
Suicide	Soundness	Concept Dis	.1	2	-
Suicide	Soundness	Mild	.1	2	-
Suicide	soundness	None	2.8	2	-
Suicide	Diff. F.A.	Concept Dis	3.3	2	-
Suicide	Diff, F.A.	Mild	.9	2	-
Suicide	Diff. F.A.	None	5.8	2	+-
Suicide	Bedtime Ch.	Concept Dis	.6	4	-
Suicide	Bedtime Ch.	Mild	3.6	4	-
Suicide	Bedtime Ch.	None	.6	4	-
Suicide	Type Onset	Concept Dis	.7	2	-
Suicide	Type Onset	Mild	2.2	2	-
Suicide	Type Onset	None	.2	2	-
Suicide	Dream Ch.	Severe Dep.	8.8	8	-
Suicide	Dream Ch.	Mild Dep.	3.1	8	-
Suicide	Dream Ch.	None	2.9	8	-

Suicide	Dream Ch	Concept Dis	8.8	8	-
Suicide	Dream Ch	Mild	3.1	8	-
Suicide	Dream Ch	None	2.9	8	-
Suicide	Dream Ch	Sed. Med	17.8	8	+ .05
Suicide	Dream Ch	Non Sed Med	6.1	8	-
Suicide	Dream Ch	None	2.3	8	-
Suicide	Medication	Dream Ch(less)	1.4	4	-
Suicide	Medication	None	5.3	4	-
Suicide	Medication	More	5.4	4	-
Suicide	Medication	Same	2.1	4	-
Suicide	Dream Ch	TYpe(no change)	9.5	8	-
Suicide	Dream Ch	Less Pleas.	4.2	8	-
Suicide	Dream Ch	More Pleas.	4.0	8	-
Suicide	Dream Ch	No Ans.	10.0	8	-
Suicide	Dream Ch	Awaken+	6.8	8	-
Suicide	Dream Change	-	8.6	8	-
Suicide	Awakening	Concept Dis	.8	2	-
Suicide	Awakening	Mild	1.1	2	-
Suicide	Awakening	None	.3	2	-
Suicide	Sleep T.N.	Concept Dis	.8	2	-
Suicide	Sleep T.N.	Mild	.1	2	-
Suicide	Sleep T.N.	None	.4	2	-
Suicide	Soundness	Diff.F.A.+	1.0	2	-
Suicide	Soundness	Diff.F.A.-	5.6	2	-
Suicide	Sleep T.N.	Diff.F.A.	.2	2	-
Suicide	Sleep T.N.	Diff.F.A.	1.1	2	-
Suicide	Sleep T.N.	Soundness+	1.1	2	-
Suicide	Sleep T.N.	Soundness	.5	2	-
Suicide	Awakening	Diff.F.A.+	.72	2	-
Suicide	Awakening	Diff.F.A.-	.3	2	-
Suicide	Medication	Type Onset	12.5	4	+ .05
Suicide	Medication	Type Onset	4.3	4	-
Suicide	Naps	Sleep Ch+	.3	2	-
Suicide	Naps	Sleep Ch-	3.4	2	-
Suicide	Diff.F.A.	AcuteOnset	1.0	2	-
Suicide	Diff.F.A.	Chronic Ons.	.1	2	-

Suicide	Soundness	Acute Onset	3.3	2	-
Suicide	Soundness	Chronic Ons	3.9	2	-
Suicide	Sleep T.N.	Acute Onset	3.2	2	-
Suicide	Sleep T.N.	Chronic Ons	2.9	2	-
Suicide	Ear.Morn.W	Acute Onset	.4	4	-
Suicide	EAr.Morn.W	Chronic Ons	6.0	4	-
Suicide	Awakening	Acute Onset	1.5	2	-
Suicide	Awakening	Chronic Ons	2.3	2	-
Suicide	Type Onset	Concept Dis	.7	2	-
Suicide	Type Onset	Mild	2.2	2	-
Suicide	Type Onset	None	.2	2	-
Suicide	Type Onset	Schiz.	.6	2	-
Suicide	Type Onset	Schiz-Affec	.6	2	-
Suicide	Type Onset	Depression	1.6	2	-
Suicide	Type Onset	Charact. Dis	.3	2	-
Diagnosis	Ear.MornW.	Acute Onset	8.8	6	-
Diagnosis	Ear.MornW.	Chronic Ons	7.6	6	-
Diagnosis	Diff. F.A.	Acute Onset	3.7	3	-
Diagnosis	Diff. F.A.	Chronic Ons	1.9	3	-
Diagnosis	Soundness	Acute Onset	.6	3	-
Diagnosis	Soundness	Chronic Ons	1.1	3	-
Diagnosis	Sleep T.N.	Acute Onset	3.6	3	-
Diagnosis	Sleep T.N.	Chronic Ons	5.5	3	-
EarlyMornW	Diff F.A.	Schizophrenic	.6	2	-
EarlyMornW	Diff F.A.	Schiz-Affect.	.0	2	-
EarlyMornW	Diff F.A.	Depression	3.9	2	-
EarlyMornW	Diff F.A.	Charact Dis	5.3	2	-
EarlyMornw	Diff F.A.	Severe Dep.	1.9	2	-
EarlyMornW	Diff F.A.	Mild Dep.	.4	2	-
EarlyMornW	Diff F.A.	None	22.7	2	+ .001
EarlyMornW	Soundness	Schiz	.7	2	-
EarlyMornW	Soundness	Schiz-Affect	.7	2	-
Early MorW	Soundness	Depression	2.5	2	-
EarlyMornW	Soundness	Charact Dis	5.2	2	-

EarlyMornW	Diff. F.A.	Concept Dis	.7	2	-
Early MornW	Diff. F.A.	Mild	4.3	2	-
Early MornW	Diff. F.A.	None	7.0	2	+ .05
EarlyMornW	Soundness	Severe Dep.	1.3	2	-
EarlyMornW	Soundness	Mild Dep.	4.3	2	-
EarlyMornW	Soundness	None	8.0	2	+ .05
EarlyMornW	Soundness	Concept Dis	.9	2	-
EarlyMornW	Soundness	Mild	.0	2	-
EarlyMornW	Soundness	None	8.6	2	+ .05
EarlyMornW	Sleep T.N.	Schiz	.4	2	-
EarlyMornW	Sleep T.N.	Schiz-Affec	.5	2	-
EarlyMornW	Sleep T.N.	Depression	2.8	2	-
EarlyMornW	Sleep T.N.	Charact Dis	4.4	2	-
EarlyMornW	Sleep T.N.	Severe Dep.	2.3	2	-
EarlyMornW	Sleep T.N.	Mild	1.7	2	-
EarlyMornW	Sleep T.N.	None	8.7	2	+ .05
EarlyMornW	Sleep T.N.	Concept Dis	.7	2	-
EarlyMornW	Sleep T.N.	Mild	.0	2	-
EarlyMornW	Sleep T.N.	None	7.8	2	+ .05
Soundness	Sleep T.N.	Diff F.A.+	24.5	1	+ .001
Soundness	Sleep T.N.	Diff F.A.-	7.4	1	+ .01
Soundness	Awakening	Diff F.A.+	31.0	1	+ .001
Soundness	Awakening	Diff F.A.-	9.75	1	+ .005
Soundness	EarlyMornW	Diff F.A.+	4.7	2	-
Soundness	EarlyMornW	Diff F.A.-	.9	2	-

Table 1 #2 Recent Sleep Change

	Present	Absent
#61 Lack Initiative	40	1
No lack	8	56

CHI 10.2
PHI 0.2
Q 0.6
Degree of Freedom 1

Table 2 #3 Difficulty Falling Asleep

	Present	Absent
#58 Depressed Mood	66	5
No Depressed Mood	60	19

CHI 6.8
PHI 0.23
Q 0.6
Degree of Freedom 1

#60 Retardation	15	1
No Retardation	6	73

CHI 4.6
PHI 0.19
Q 0.53
Degree of Freedom 1

#61 Lack of Initiative	31	40
No Lack	17	62

CHI 7.4
PHI 0.23
Q 0.47
Degree of Freedom 1

Table 3

#4 Awakening at Night

	Present	Absent
#58 Depressed Mood	63	6
No Depressed Mood	63	18

CHI 4.1
PHI 0.23
Q 0.47
Degree of Freedom 1

Table 4

#5 Early Morning Waking

	Present	Absent
#56 Verbal Hostility	6	40
No Verbal Host.	27	76

CHI 4.0
PHI -0.14
Q -0.40
Degree of Freedom 1

#61 Lack of Initiative	16	32
No Lack of Init.	17	1

CHI 4.2
PHI 0.18
Q 0.42
Degree of Freedom 1

#71 Speech Impairment	16	29
No Impairment	17	86

CHI 5.5
PHI 0.21
Q 0.47
Degree of Freedom 1

Table 5 #6 Duration of Recent Sleep Change

	Acute	Chronic
#57 Alcoholism	15	6
Non Alcoholic	32	38

CHI 4.2
Degree of Freedom 1

Table 6 #7 Change in Bedtime

	Earlier	No Change	Later
#57 Addiction	0	2	1
Alcoholism	0	30	14
None	27	51	25

CHI 15.04
Degree of Freedom 4

#58 Depressed Mood	26	64	36
No Depressed Mood	1	19	4

CHI 7.04
Degree of Freedom 2

#60 Retardation	8	7	6
No Retardation	19	76	34

CHI 7.6
Degree of Freedom 2

#61 Lack of Initiative	14	18	16
No Lack Init.	13	65	24

CHI 10.12
Degree of Freedom 2

Table 7

#8 Change in Length of Time to Fall Asleep

	Easier	Harder
#58 Depressed Mood	61	65
No Depressed Mood	19	5

CHI 8.94
PHI -0.22
Q -0.60
Degree of Freedom 1

#60 Retardation	5	16
No Retardation	75	54

CHI 9.98
PHI -0.23
Q -0.63
Degree of Freedom 1

#61 Lack of Initiative	18	30
No Lack of Init.	62	40

CHI 8.07
PHI -0.21
Q -0.44
Degree of Freedom 1

Table 8

#10 Change in Soundness

	Present	Absent
#58 Depression of Mood	53	72
No Depression of Mood	3	21

CHI 6.45
PHI 0.22
Q 0.67
Degree of Freedom 1

Table 9

#12 Formerly Able to Sleep Through Night

	Yes	No
#55 Aggressive Behavior	14	3
No Aggress. Behavior	130	2

CHI 17.57
PHI -0.28
Q -0.86
Degree of Freedom 1

#62 Hyperactivity	21	3
No Hyperactivity	123	2

CHI 11.11
PHI -0.28
Q -0.29
Degree of Freedom 1

#69 Hallucinations	19	3
No Hallucination	125	2

CHI 12.54
PHI -0.23
Q -0.81
Degree of Freedom 1

Table 10

#13 Change in Ability to Sleep Through Night

	Yes	No
#58 Depressed Mood	64	62
No Depressed Mood	5	19

CHI 6.12
PHI 0.22
Q 0.59
Degree of Freedom 1

#79 Male	17	33
Female	51	48

CHI 4.84
PHI -0.16
Q -0.34
Degree of Freedom 1

Table 11 — #15 Frequency of Awakening at Night

	Same	Increased
#58 Depressed Mood	61	60
No Depressed Mood	18	6

CHI 5.92
PHI -0.18
Q -0.49
Degree of Freedom 1

Table 12 — #23 Frequency of Dreams

	Less	None	More	Same	No Answer
#73 Seizures	0	0	4	0	0
No Seizures	28	8	29	76	5

CHI 14.57
Degree of Freedom 4

Table 13 — #24 Change in Quality of Dreams

	None	Less Pleasant	More Pl.	No Ans.
#61 Lack Initiative	33	13	2	0
No Lack Init.	77	13	2	10

CHI 9.37
Degree of Freedom 3

#73 Seizures	1	2	1	0
No Seizures	109	24	3	10

CHI 11.79
Degree of Freedom 3

Table 14 #26 Change in Waking Hour

		Earlier	No Change	Later
#71	Intellect. Impair.	18	25	2
	No Intellect Imp.	17	76	10
	CHI 9.90 Degree of Freedom 2			
#74	Physical Illness	3	1	0
	No Illness	32	101	12

Table 15 #27 Number of Naps

		Same	More
#63	Isolation	7	7
	No Isolation	20	115
	CHI 8.34 PHI 0.26 Q 0.70 Degree of Freedom 1		

Table 16 #28 Type of Medication

		Sedative	Non Sed.	None
#57	Addiction	1	2	0
	Alcoholism	14	4	26
	None	36	25	42
	CHI 10.33 Degree of Freedom 4			
#58	Depressed Mood	50	25	51
	Non Depressed Mood	1	6	17
	CHI 11.83 Degree of Freedom 2			
#61	Lack of Initiative	18	16	14
	No Lack Init.	33	15	54

Table 17 #3 Difficulty Falling Asleep

		Present	Absent
#23	Less dreams	18	10
	No Dreams	2	6
	More Dreams	19	14
	Same Dreams	27	49
	No Answer	5	0
	CHI 16.03 Degree of Freedom 4		
#24	No Change	50	60
	Less Pleasant	18	8
	More Pleasnat	1	3
	NO Answer	2	8
	CHI 8.95 Degree of Freedom 3		
#25	Wake from Dreams	21	10
	Do Not Wake	48	62
	CHI 4.70 Degree of Freedom 1		
#39	Depression(Severe)	45	25
	(Mild)	18	20
	(None)	8	34
	CHI 21.54 Degree of Freedom 2		
#45	Diagnosis(Schiz)	11	18
	Schiz-Affective	16	3
	Depressive	33	24
	Character Disorder	11	34
	CHI 23.40 Degree of Freedom 3		

Table 18 #4 Awakening at Night

	Present	Absent
#39 Depression(Severe)	37	1
(Mild)	20	18
(None)	12	30

CHI 7.1 Degree of Freedom 2

Table 19 #7 Bedtime Change

	Earlier	No Change	Later
#39 Depression(Severe)	18	29	23
(Mild)	5	21	12
(None)	4	33	5

CHI 15.81
Degree of Freedom 3

#64 Withdrawal	15	23	15
No Withdrawal	12	60	25

CHI 7.02 Degree of Freedom 2

#45 Diagnosis(Schiz)	3	19	7
Schiz-Affect.	6↑	8	5
Depressive	15↑	22	↑20
Character Disorder	3	↑34	8

CHI 18.56
Degree of Freedom 6

Table 20 #37 Suicidal Attempt/Gesture

	Attempt	Gesture	None
#64 Withdrawal	11	26	16
No withdrawal	10	39	48
CHI 6.28 Degree Freedom 2			
#40 Concept. Disorder CHI 12.1 Degree Freedom 4 (Severe)	4	12	25
(Mild)	2	11	14
(None)	15	42	25
#39 Depression (Severe)	13	35	22
(Mild)	6	17	15
(None)	2	13	27
CHI 12.67 Degree Freedom 4			
#45 Diagnosis (Schiz)	4	5	20
(Schiz. Affec.)	1	9	9
(Depressed)	8	32	17
(Character Dis.)	8	19	18
CHI 15.37 Degree Freedom 6			
#44 Method of Attempt (Pills)	5	28	0
(Wrists, throat)	5	17	0
(Others)	11	10	0
(No Attempt)	0	0	64
CHI 13.66 Degree Freedom 14			

Table 21 — #37 Suicidal Act

	Suicide	No Suicide
Decrease # Dreams	18	10
No Change # Dreams	31	45

CHI 4.75
Degree Freedom 1

Sedative Tranquillizer	35	16
Other or No Medication	51	48

CHI 3.90
Degree Freedom 1

Table 22 — #38 History of Suicide

	Present	Absent
#23 Dream Change(Less)	4	24
(More)	15	17
(Same)	15	61
(No Ans)	2	3

CHI 11.79
Degree Freedom 4

#24 Qual. Dream Change		
(None)	21	89
(Less Pleasant)	13	13
(More Pleasant)	2	2
(No Answer)	3	6

CHI 11.90
Degree Freedom 4

#25 Dreams Awaken(Yes)	14	16
No	16	88

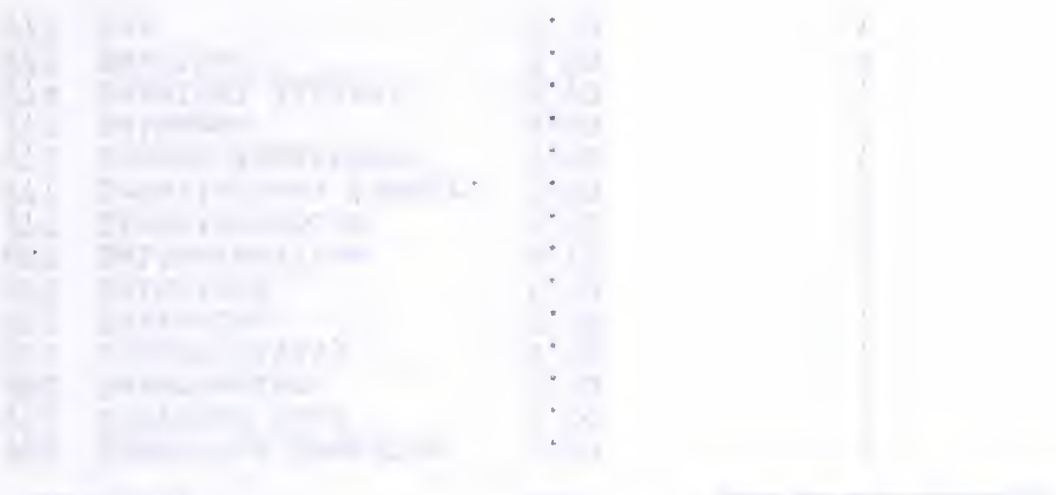
CHI 7.4
Degree Freedom 1
PHI -.25
Q -.55

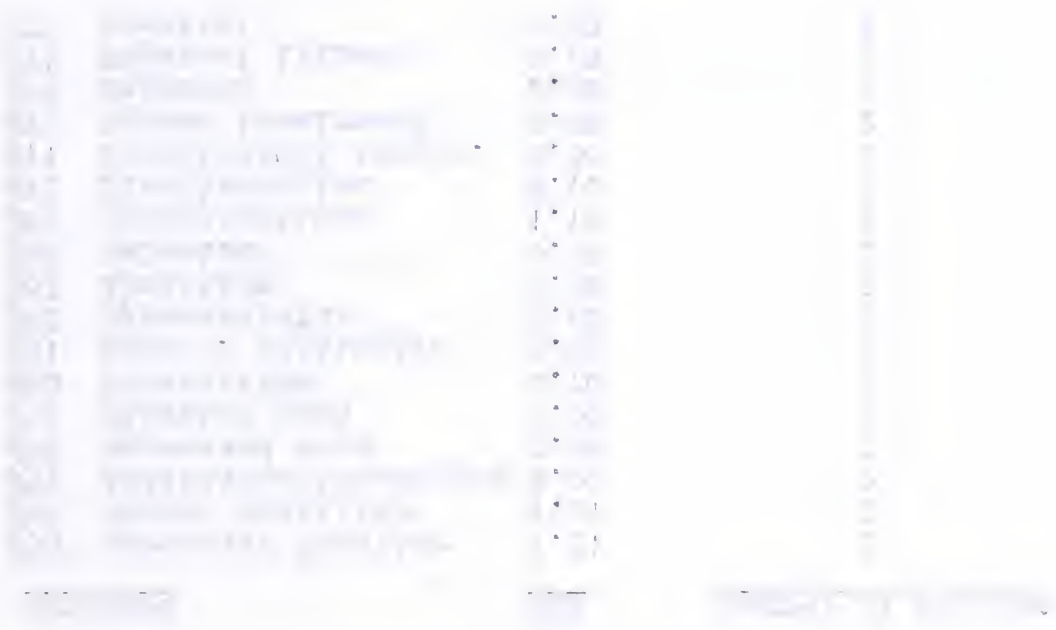
SLEEP PATTERN HISTORY (#1)

Symptoms		CHI	Degree of Freedom
#55	Agressive Behavior	1.31	2
#56	Verbal Hostility	1.21	2
#57	Addictions/Alcoholism	4.00	2
#58	Depressed mood	0.02	2
#59	Elevated mood	0.00	2
#60	Retardation	0.70	2
#61	Lack of initiative	0.02	2
#62	Hyperactivity	3.60	2
#63	Isolation	0.80	2
#68	Delusions	0.90	2
#69	Hallucinations	1.10	2
#70	Disorientation	8.10	6
#71	Intellectual impair.	2.80	2
#72	Speech impairment	0.20	2
#73	Seizures	2.20	2
#74	Physical illness	0.10	2
#75	Hospital	0.80	8

RECENT SLEEP CHANGE (#2)

Variables		CHI	Degree of Freedom
#55	Agressive Behavior	3.20	1
#59	Elevated mood	0.00	1
#60	Retardation	2.20	1
#62	Hyperactivity	0.05	1
#63	Isolation	0.80	1
#68	Delusions	1.20	1
#69	Hallucinations	0.70	1
#70	Disorientation	2.20	3
#71	Intellectual impair.	2.80	1
#72	Speech impairment	0.08	1
#73	Seizures	0.90	1
#74	Physical illness	0.90	1
#75	Hospital	5.80	4
#79	Sex	0.20	1





DIFFICULTY FALLING ASLEEP (#3)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.07	1
#56	Verbal Hostility	0.60	1
#57	Addiction/Acoholism	5.10	2
#59	Elevated mood	0.00	1
#62	Hyperactivity	0.02	1
#63	Isolation	1.11	1
#68	Delusions	0.01	1
#69	Hallucinations	0.03	1
#70	Disorientation	4.30	3
#71	Intellectual impair.	0.00	1
#72	Speech impairment	0.08	1
#73	Seizures	0.10	1
#74	Physical illness	2.60	1
#75	Hospital	7.10	4
#79	Sex	0.01	1

AWAKENING AT NIGHT (#4)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.46	1
#56	Verbal Hostility	0.89	1
#57	Addiction/Alcoholism	3.52	2
#59	Elevated mood	0.00	1
#60	Retardation	0.00	1
#61	Lack of initiative	1.40	1
#62	Hyperactivity	0.00	1
#63	Isolation	1.35	1
#68	Delusions	1.21	1
#69	Hallucinations	1.76	1
#70	Disorientation	0.82	3
#71	Intellectual impair.	0.05	1
#72	Speech impairment	1.10	1
#73	Seizures	0.45	1
#74	Physical illness	1.80	1
#75	Hospital	2.00	3
#79	Sex	3.40	1

EARLY MORNING WAKING (#5)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.61	1
#57	Addiction/Alcoholism	3.51	4
#58	Depressed mood	0.00	1
#59	Elevated mood	0.00	1
#60	Retardation	0.00	1
#62	Hyperactivity	0.25	1
#63	Isolation	0.89	1
#68	Delusions	0.02	1
#69	Hallucinations	0.04	1
#70	Disorientation	4.16	3
#72	Speech impairment	1.38	1
#73	Seizures	2.21	1
#75	Hospital	2.30	4
#79	Sex	0.14	1

DURATION OF RECENT SLEEP CHANGE (#6)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.21	1
#56	Verbal Hostility	0.02	1
#58	Depressed mood	1.69	1
#59	Elevated mood	0.00	1
#60	Retardation	0.17	1
#61	Lack of initiative	0.22	1
#62	Hyperactivity	0.54	1
#63	Isolation	0.80	1
#68	Delusions	0.75	1
#69	Hallucinations	0.01	1
#70	Disorientation	2.80	3
#71	Intellectual impair.	0.05	1
#72	Speech impairment	0.33	1
#73	Seizures	2.15	1
#74	Physical illness	0.33	1
#75	Hospital	1.30	4
#79	Sex	0.00	1

CHANGE IN BEDTIME (#7)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	1.90	2
#56	Verbal Hostility	3.90	2
#59	Elevated mood	0.00	2
#62	Hyperactivity	1.90	2
#63	Isolation	2.50	2
#68	Delusions	1.11	2
#69	Hallucinations	2.93	2
#70	Disorientation	4.20	6
#71	Intellectual impair.	0,13	2
#72	Speech impairment	1.37	2
#73	Seizures	1.03	2
#74	Physical illness	3.02	2
#75	Hospital	8.15	6
#79	Sex	3.85	2

CHANGE IN LENGTH OF TIME TO FALL ASLEEP (#8)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.08	1
#56	Verbal Hostility	1.11	1
#57	Addiction/Alcoholism	5.87	2
#59	Elevated mood	0.00	1
#62	Hyperactivity	0.13	1
#63	Isolation	1.22	1
#68	Delusions	0.36	1
#69	Hallucinations	0.12	1
#70	Disorientation	4.33	3
#71	Intellectual impair.	0.71	1
#72	Speech impairment	0.34	1
#73	Seizures	0.41	1
#75	Hospital	6.31	3
#79	Sex	0.00	1

CHANGE IN SOUNDNESS OF SLEEP (#10)

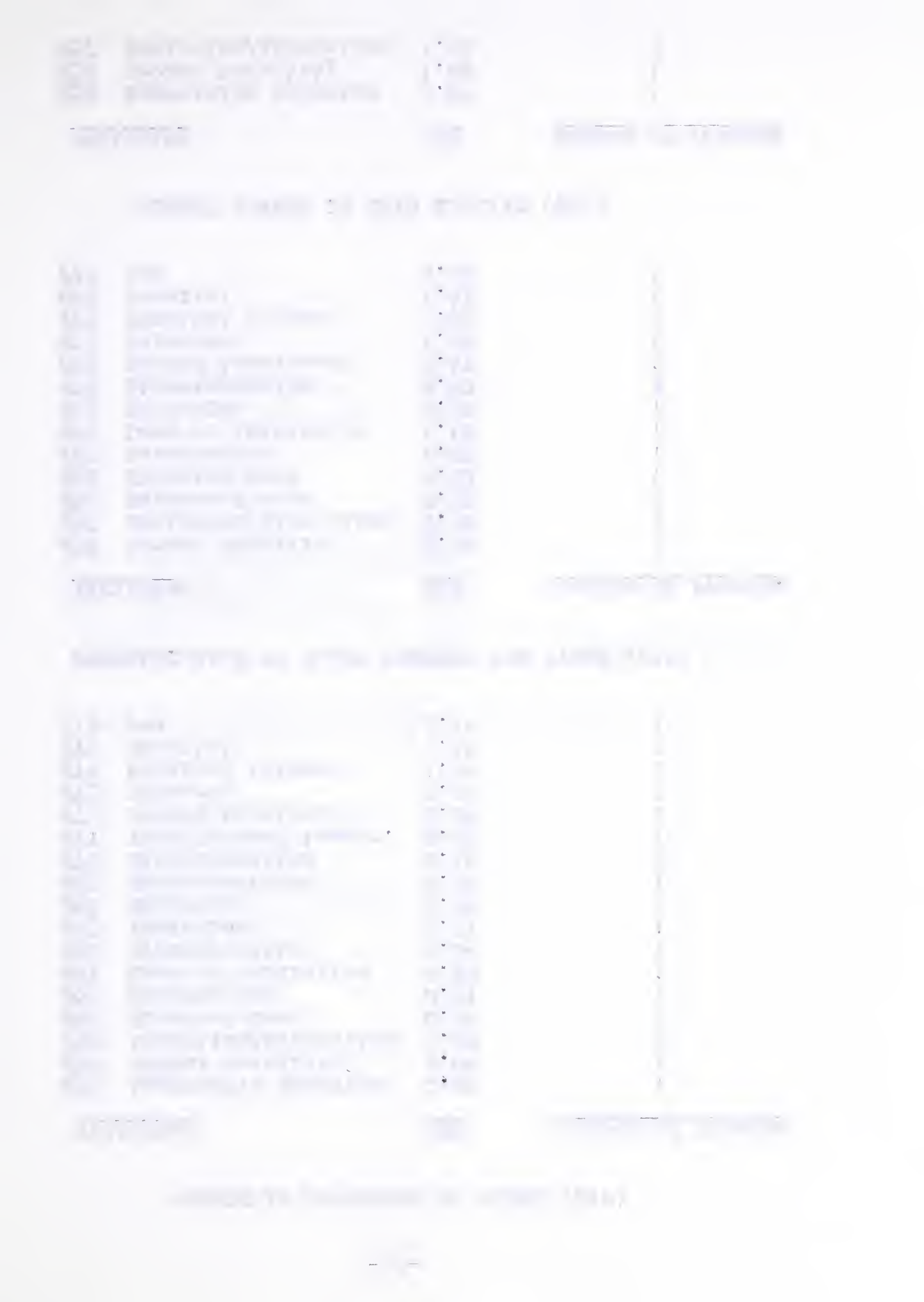
Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.22	1
#56	Verbal Hostility	1.04	1
#57	Addiction/Alcoholism	2.33	2
#59	Elevated mood	0.00	1
#60	Retardation	0.61	1
#61	Lack of initiative	0.79	1
#62	Hyperactivity	0.04	1
#63	Isolation	0.51	1
#68	Delusions	0.35	1
#69	Hallucinations	0.34	1
#70	Disorientation	6.19	3
#71	Intellectual impair.	0.18	1
#72	Speech impairment	2.28	1
#73	Seizures	1.10	1
#74	Physical illness	1.10	1
#75	Hospital	1.04	3
#79	Sex	2.11	1

FORMALLY ABLE TO SLEEP THROUGH THE NIGHT (#12)

Variables		CHI	Degree of Freedom
#56	Verbal Hostility	3.70	1
#57	Addiction/Alcoholism	0.36	2
#58	Depressed mood	0.73	1
#59	Elevated mood	0.00	1
#60	Retardation	1.08	1
#61	Lack of initiative	1.16	1
#63	Isolation	0.00	1
#70	Disorientation	0.80	3
#72	Speech impairment	0.47	1
#73	Seizures	1.05	1
#74	Physical illness	1.05	1
#75	Hospital	1.43	1
#79	Sex	0.66	1

RECENT CHANGE IN THIS ABILITY (#13)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	2.94	1
#56	Verbal Hostility	1.69	1
#57	Addiction/Alcoholism	4.35	2



#59	Elevated mood	0.00	1
#60	Retardation	0.75	1
#61	Lack of initiative	3.62	1
#62	Hyperactivity	0.19	1
#63	Isolation	0.35	1
#68	Delusions	1.21	1
#69	Hallucinations	1.76	1
#70	Disorientation	0.82	3
#71	Intellectual impair.	0.35	1
#72	Speech impairment	1.10	1
#73	Seizures	0.11	1
#74	Physical illness	1.85	1
#75	Hospital	1.63	3

CHANGE IN WAKING AT NIGHT (#15)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.01	1
#56	Verbal Hostility	0.51	1
#57	Addiction/Alcoholism	2.83	2
#59	Elevated mood	0.00	1
#60	Retardation	0.45	1
#61	Lack of initiative	3.31	1
#62	Hyperactivity	0.22	1
#63	Isolation	0.85	1
#68	Delusions	2.53	1
#69	Hallucinations	3.48	1
#70	Disorientation	0.59	3
#71	Intellectual impair.	0.71	1
#72	Speech impairment	0.50	1
#73	Seizures	2.92	1
#74	Physical illness	0.10	1
#75	Hospital	2.18	3
#79	Sex	2.19	1

CHANGE IN DREAM FREQUENCY (#23)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	2.53	4
#56	Verbal Hostility	5.01	4
#57	Addiction/Alcoholism	10.04	8
#58	Depressed mood	6.98	4
#59	Elevated mood	0.00	4
#60	Retardation	3.97	4

#61	Lack of initiative	7.34	4
#62	Hyperactivity	3.11	4
#63	Isolation	3.98	4
#68	Delusions	4.23	4
#69	Hallucinations	5.27	4
#70	Disorientation	9.17	12
#71	Intellectual impair.	2.78	4
#72	Speech impairment	0.95	4
#74	Physical illness	8.15	4
#75	Hospital	11.80	12
#79	Sex	5.20	4

QUALITATIVE DREAM CHANGE (#24)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.55	3
#56	Verbal Hostility	4.83	3
#57	Addiction/Alcoholism	6.40	6
#58	Depressed mood	6.39	3
#59	Elevated mood	0.00	3
#60	Retardation	5.98	3
#62	Hyperactivity	2.11	3
#63	Isoaltion	0.55	3
#68	Delusions	0.95	3
#69	Hallucinations	2.28	3
#70	Disorientation	3.31	9
#71	Intellectual impair.	0.54	3
#72	Speech impairment	2.27	3
#74	Physical illness	0.52	3
#75	Hospital	9.52	9
#79	Sex	4.16	3

INCREASED WAKING DUE TO DREAMS (#25)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.42	1
#56	Verbal Hostility	2.20	1
#57	Addiction/Alcoholism	2.79	4
#58	Depressed mood	1.22	1
#59	Elevated mood	0.00	1
#60	Retardation	2.71	1
#61	Lack of initiative	0.16	1

#62	Hyperactivity	0.63	1
#63	Isolation	0.20	1
#68	Delusions	0.11	1
#69	Hallucinations	0.00	1
#70	Disorientation	2.10	3
#71	Intellectual impair.	0.63	1
#74	Physical illness	0.21	1
#75	Hospital	3.21	1
#79	Sex	3.13	1

CHANGE IN WAKING HOUR (#26)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	0.57	2
#56	Verbal Hostility	5.43	2
#57	Addiction/Alcoholism	6.59	4
#58	Depressed mood	2.86	2
#60	Retardation	1.90	2
#61	Lack of initiative	5.83	2
#62	Hyperactivity	1.62	2
#63	Isolation	1.28	2
#68	Delusions	1.24	2
#69	Hallucinations	1.06	2
#70	Disorientation	4.53	6
#72	Speech impairment	3.57	2
#73	Seizures	0.36	2
#75	Hospital	3.92	6
#79	Sex	1.14	2

NUMBER OF NAPS (#27)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	1.11	1
#56	Verbal Hostility	0.00	1
#57	Addiction/Alcoholism	2.24	2
#58	Depressed mood	0.24	1
#60	Retardation	1.07	1
#61	Lack of initiative	0.13	1
#62	Hyperactivity	1.54	1
#68	Delusions	0.11	1
#69	Hallucinations	0.08	1
#70	Disorientation	1.45	3
#71	Intellectual impair.	0.47	1
#72	Speech impairment	0.19	1

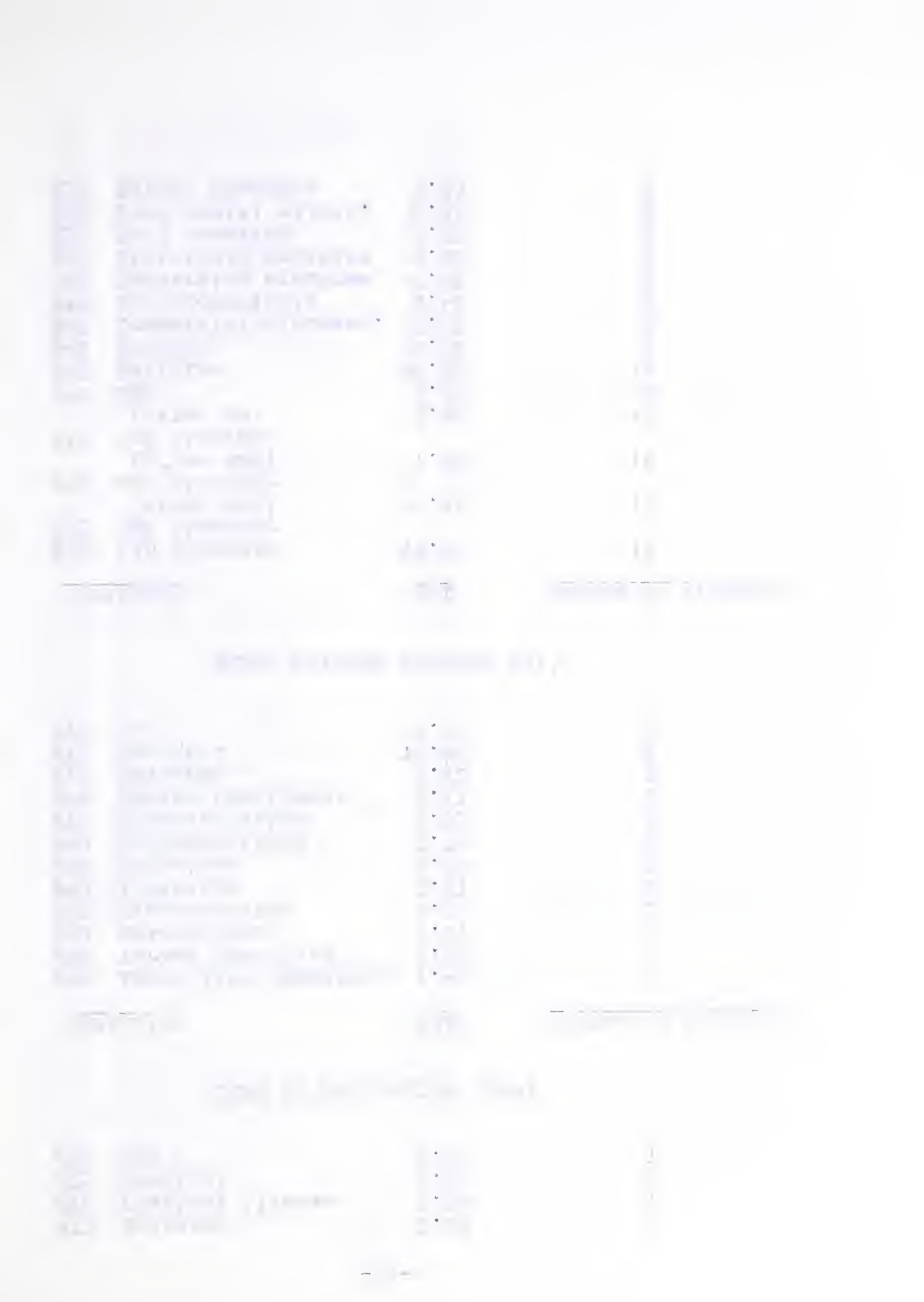
#73	Seizures	0.08	1
#74	Physical illness	2.59	1
#75	Hospital	7.47	3
#79	Sex	0.93	1

TYPE OF MEDICATION (#28)

Variables		CHI	Degree of Freedom
#55	Aggressive Behavior	1.47	2
#56	Verbal Hostility	2.56	2
#60	Retardation	0.87	2
#62	Hyperactivity	4.52	2
#63	Isolation	3.57	2
#68	Delusions	2.09	2
#69	Hallucinations	0.79	2
#70	Disorientation	2.55	6
#72	Speech impairment	0.71	2
#73	Seizures	0.72	2
#75	Hospital	10.46	6
#79	Sex	0.78	2

SLEEP PATTERN HISTORY (#1)

Variables		CHI	Degree of Freedom
#32	1st disorder	18.93	18
#33	2nd disorder (after DFA)	10.61	16
#34	2nd disorder (after EMW)	1.20	16
#35	2nd disorder (after AN)	6.36	16
#41	Age	3.35	12
#42	Religion	20.22	12
#46	Phobias	0.88	2
#47	Compulsivity/obsess.	0.26	2
#48	Hypochondriasis	2.46	2
#49	Conversion symptoms	0.00	2
#50	Histrionic behavior	5.92	2
#51	Rule breaking	0.75	2
#52	Poor social adjust,	0.93	2
#53	Sexual thoughts	0.94	2



RECENT SLEEP CHANGE (#2)

Variables		CHI	Degree of Freedom
#34	2nd disorder (after EMW)	5.38	8
#35	2nd disorder (after AN)	11.95	8
#41	Age	10.76	6
#42	Religion	7.34	6
#43	Marital Status	1.72	4
#46	Phobias	0.25	1
#47	Compulsivity/obsess.	1.55	1
#48	Hypochondriasis	2.70	1
#49	Conversion symptoms	0.00	1
#50	Histrionic behavior	0.32	1
#52	Poor social adjust.	1.01	1
#53	Sexual thoughts	1.01	1
#54	Inappro. sexual act.	2.59	1

DIFFICULTY FALLING ASLEEP (#3)

Variables		CHI	Degree of Freedom
#34	2nd disorder (after EMW)	8.60	8
#41	Age	8.12	6
#42	Religion	4.40	6
#43	Marital Status	2.21	4
#46	Phobias	0.02	1
#47	Compulsivity/obsess.	0.72	1
#48	Hypochondriasis	0.25	1
#49	Conversion symptoms	0.00	1
#50	Histrionic behavior	0.30	1
#51	Rule breaking	2.00	1
#53	Sexual thoughts	0.04	1
#54	Inappro. sexual act.	2.89	1

AWAKENING AT NIGHT (#4)

Variables		CHI	Degree of Freedom
#41	Age	7.90	6
#42	Religion	7.99	6

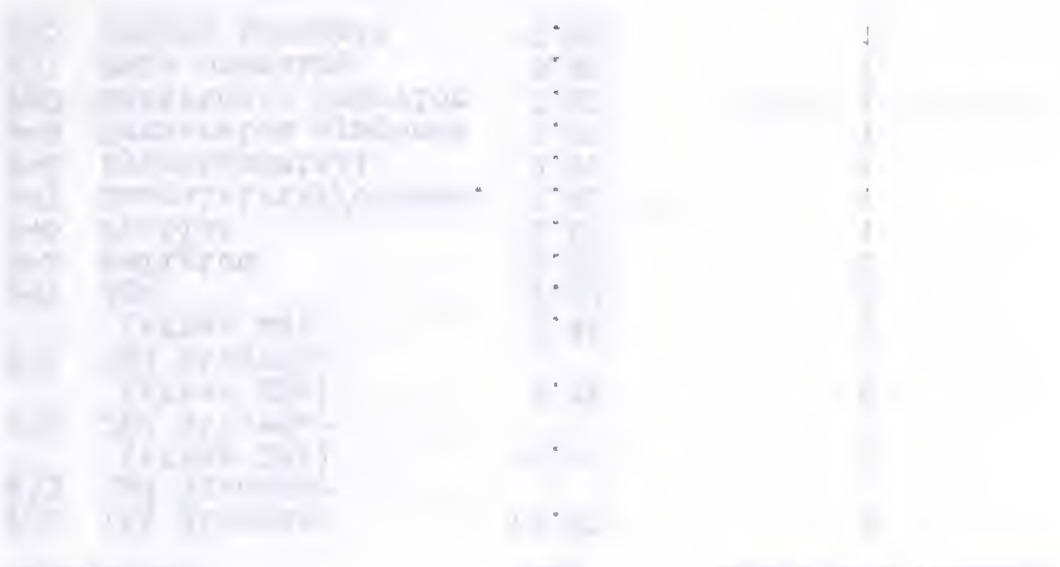
#43	Marital Status	4.40	4
#46	Phobias	0.05	1
#48	Hypochondriasis	0.40	1
#49	Conversion symptoms	0.00	1
#50	Histrionic behavior	0.47	1
#51	Rule breaking	1.71	1
#52	Poor social adjust.	0.05	1
#54	Inappro. sexual act.	0.53	1

EARLY MORNING WAKING (#5)

Variables		CHI	Degree of Freedom
#41	Age	6.19	6
#42	Religion	8.54	6
#43	Marital Status	1.61	4
#46	Phobias	1.55	1
#47	Compulsivity/obsess.	0.16	1
#48	Hypochondriasis	2.13	1
#50	Histrionic behavior	0.02	1
#51	Rule breaking	1.42	1
#52	Poor social adjust.	0.14	1
#54	Inappro. sexual act.	3.10	1

DURATION OF RECENT SLEEP CHANGE (#6)

Variables		CHI	Degree of Freedom
#32	1st disorder	14.47	9
#33	2nd disorder (after DFA)	12.44	8
#34	2nd disorder (after EMW)	5.76	8
#35	2nd disorder (after AN)	2.48	8
#41	Age	9.53	6
#42	Religion	5.25	6
#46	Phobias	2.67	1
#47	Compulsivity/obsess.	2.20	1
#48	Hypochondriasis	0.02	1
#49	Conversion symptoms	0.00	1
#50	Histrionic behavior	0.00	1
#51	Rule breaking	0.99	1
#53	Sexual thoughts	0.49	1



Suicidal Attempt(#37)

#66	Paranoid Thoughts	2.04	2
#65	Regressive Behavior	.66	2
#23	Dream Freq. Change	10.48	8
#24	Dream Qual. Change	6.74	6
#25	Dreams Awake Night	4.94	2

History of Suicidal Attempt(#38)

#39	Depression	5.12	2
#40	Concept. Disorder	2.88	2
#45	Diagnosis	4.49	3
#64	Withdrawal	.02	1
#66	Paranoid Thoughts	.03	1

Changed Bedtime(#8)

#23	Increased Dreams	13.99	8
#24	Change Qual. Dreams	1.89	8
#25	Dreams Awaken	1.43	2
#40	Concept Disorder	5.77	4

Duration of Sleep Change(#6)

#39	Depression	2.91	2
#40	Concept Disorder	2.51	2

Early Morning Waking(#5)

#39	Depression	2.91	2
#40	Concept Disorder	2.51	2
#64	Withdrawal	1.29	1
#66	Paranoid Thoughts	1.00	1
#67	Bizarre Speech	2.31	1

Awakening at Night(#4)

#45	Diagnosis	5.74	3
#44	Method Suicidal Att.	6.67	7

Difficulty Falling Asleep(#3)

#44	Method of Suicidal Att.	12.98	7
#40	Concept Disorder	3.22	2

RECENT SLEEP CHANGE (#2)

#65	Regressive behavior	0.98	1
#66	Paranoid thoughts	0.21	1

SLEEP PATTERN HISTORY (#1)

#23	Freq. of dream chan.	5.96	8
#39	Depression	3.24	4
#40	Conceptual disorder	1.22	4
#44	Method of Attempt	20.58	14
#45	Diagnosis	0.93	6
#65	Regressive behavior	1.25	2
#66	Paranoid thoughts	0.74	2

TYPE OF MEDICATION (#28)

#41	Age	7.23	10
#43	Marital Status	3.13	6
#46	Phobias	0.66	2
#47	Compulsivity/obsess.	2.03	2
#49	Conversion symptoms	0.00	2
#50	Histrionic behavior	3.73	2
#51	Rule breaking	1.75	2
#53	Sexual thoughts	0.35	2
#54	Inappro. sexual act.	1.36	2

NUMBER OF NAPS (#27)

#41	Age	4.04	5
#46	Phobias	0.60	1
#47	Compulsivity/obsess.	1.01	1
#48	Hypochondriasis	0.08	1
#49	Conversion symptoms	0.00	1
#50	Histrionic behavior	0.40	1
#51	Rule breaking	0.74	1
#52	Poor social adjust.	0.19	1
#53	Sexual thoughts	0.18	1
#54	Inappro. sexual act.	0.22	1

CHANGE IN WAKING HOUR (#26)

#41	Age	10.92	10
#46	Phobias	0.80	2

#47	Compulsivity/obsess.	0.89	2
#48	Hypochondriasis	2.54	2
#50	Histrionic behavior	1.14	2
#51	Rule breaking	1.36	2
#52	Poor social adjust.	0.85	2
#53	Sexual thoughts	1.49	2
#54	Inappro. sexual act.	2.23	2

INCREASED WAKING DUE TO DREAMS (#25)

#41	Age	5.66	5
#46	Phobias	0.48	1
#48	Hypochondriasis	2.22	1
#50	Histrionic behavior	0.03	1
#51	Rule breaking	0.20	1
#52	Poor social adjust.	0.17	1
#53	Sexual thoughts	0.00	1
#54	Inappro. sexual act.	0.43	1

QUALITATIVE DREAM CHANGE (#24)

#46	Phobias	0.90	4
#47	Compulsivity/obsess	8.34	4
#48	Hypochondriasis	2.89	4
#50	Histrionic behavior	0.67	4
#51	Rule breaking	1.70	4
#52	Poor social adjust.	1.73	4
#53	Sexual thoughts	4.62	4
#54	Inappro. sexual act.	0.53	4

CHANGE IN DREAM FREQUENCY (#23)

#54	Inappro. sexual act.	0.55	4
#31	Order of start	41.83	20
#41	Age	21.26	20
#46	Phobias	1.91	4
#47	Compulsivity/obsess.	3.38	4
#48	Hypochondriasis	2.75	4
#50	Histrionic behavior	7.52	4
#51	Rule breaking	3.11	4
#52	Poor social adjust.	2.40	4
#53	Sexual thoughts	1.25	4

CHANGE IN WAKING AT NIGHT (#15)

#41	Age	10.77	5

#46	Phobias	0.39	1
#48	Hypochondriasis	0.84	1
#50	Histrionic behavior	0.41	1
#51	Rule breaking	0.52	1
#52	Poor social adjust.	0.24	1
#54	Inappro. sexual act.	0.04	1

FORMALLY ABLE TO SLEEP THROUGH THE NIGHT (#12)

#41	Age	2.92	5
#46	Phobias	0.14	1
#50	Histrionic behavior	0.47	1
#52	Poor social adjust.	0.56	1
#54	Inappro. sexual sct.	0.70	1

RECENT CHANGE IN THIS ABILITY (#13)

#41	Age	7.31	5
#46	Phobias	0.07	1
#48	Hypochondriasis	0.03	1
#49	Conversion symptoms	0.00	1
#50	Histrionic behavior	0.04	1
#52	Poor social adjust.	0.39	1
#53	Sexual thoughts	3.28	1
#54	Inappro. sexual act.	0.53	1

CHANGE IN SOUNDNESS OF SLEEP (#10)

#41	Age	7.54	5
#46	Phobias	0.00	1
#47	Compulsivity/obsess.	2.26	1
#50	Histrionic behavior	0.42	1
#51	Rule breaking	0.40	1
#52	Poor social adjust.	2.12	1
#53	Sexual thoughts	0.08	1
#54	Inappro. sexual act.	1.67	1

CHANGE IN DREAM FREQUENCY (#23)

#31	Order of start	41.83	20
#41	Age	21.26	20
#46	Phobias	1.91	4
#47	Compulsivity/obsess.	3.38	4
#48	Hypochondriasis	2.75	4
#50	Histrionic behavior	7.52	4
#51	Rule breaking	3.11	4

#52	Poor social adjust.	2.40	4
#53	Sexual thoughts	1.25	4

CHANGE IN WAKING AT NIGHT (#15)

#41	Age	10.77	5
#46	Phobias	0.39	1
#48	Hypochondriasis	0.84	1
#50	Histrionic behavior	0.52	1
#51	Rule breaking	0.52	1
#52	Poor social adjust.	0.24	1
#54	Inappro. sexual act.	0.04	1

FORMALLY ABLE TO SLEEP THROUGH THE NIGHT (#12)

#41	Age	2.92	5
#46	Phobias	0.14	1
#50	Histrionic behavior	0.47	1
#52	Poor social adjust.	0.56	1
#54	Inappro. sexual act.	0.70	1

RECENT CHANGE IN THIS ABILITY (#13)

#46	Phobias	0.07	1
#48	Hypochondriasis	0.03	1
#49	Conversion symptoms	0.00	1
#50	Histrionic behavior	0.04	1
#52	Poor social adjust.	0.39	1
#53	Sexual thoughts	3.28	1
#54	Inappro. sexual act.	0.53	1

CHANGE IN SOUNDNESS OF SLEEP (#10)

#41	Age	7.54	5
#46	Phobias	0.00	1
#47	Compulsivity/obsess.	2.26	1
#50	Histrionic behavior	0.42	1
#51	Rule breaking	0.40	1
#52	Poor social adjust.	2.12	1
#53	Sexual thoughts	0.08	1
#54	Inappro. sexual act.	1.67	1

CHANGE IN TIME TO FALL ASLEEP (#8)

#41	Age	6.94	5
#46	Phobias	0.03	1

#47	Compulsivity/obsess.	2.51	1
#48	Hypochondriasis	1.06	1
#50	Histrionic behavior	2.01	1
#51	Rule breaking	0.66	1
#52	Poor social adjust.	0.07	1
#53	Sexual thoughts	0.10	1
#54	Inappro. sexual act.	0.57	1

CHANGE IN BEDTIME (#7)

#41	Age	9.57	10
#46	Phobias	0.49	2
#47	Compulsivity/obsess.	0.16	2
#48	Hypochondriasis	5.94	2
#50	Histrionic behavior	4.33	2
#51	Rule breaking	3.97	2
#52	Poor social adjust.	0.89	2
#53	Sexual thoughts	0.10	2
#54	Inappro. sexual act.	1.95	2

BIBLIOGRAPHY

1. Ayd, Frank J., Jr.: Recognizing the Depressed Patient. Grune and Stratton, New York and London, 1961.

2. Bjerner, B.: Alpha depression and lowered pulse rate during delayed actions in a serial reaction test: a study in sleep deprivation. Acta Physiol. Scandinavica 19, Suppl. 65, pp 1-93, 1949.

3. Bliss, Eugene L., Clark, L.D. and West, C.D.: Studies of sleep deprivation - relationship to Schizophrenia. Arch. Neurol. and Psychiat. 81:348, 1959.

4. Brauchi, J.T. and West, L.J.: Sleep deprivation. JAMA 171:11, 1959.

5. Burns, C.: Sleep, physiology, pathology and groups of therapeutic agents. New Zealand Med. J. 58:584, 1959.

6. Diaz Guerrero, Gottlieb, and Knott.: The sleep of patients with manic-depressive psychosis, depressive type. Psychosomatic Med. 8:399, 1946.

7. Edwards, A.S.: Effects of the loss of 100 hours of sleep. Am. J. Psychol. 54, 1941.

8. Harrison, T.R.: Principles of Internal Medicine. ed. 3, McGraw - Hill Book Co., Inc., 1958.

9. Hinton, J.M.: Patterns of insomnia in depressive states. J. Neurol. Neurosurg. and Psychiat., 26:184, 1963.

10. Houssay, B.A., et al.: Human Physiology, ed. 2., McGraw - Hill Book Co., Inc., New York, 1955.

11. Ingram, W.R., in Field, J.: Handbook of Physiology. Sect. 1 Neurophysiology 2:95 1, American Physiological Society, Washington, D.C., 1960.

12. Katz, S.E. and Landis, C.: Psychologic and physiologic phenomena during a prolonged vigil. Arch. Neur. Psych. 34:307, 1935.

13. Kleitman, N.: Sleep and Wakefulness. Univ. of Chicago Press, Chicago, 1939.

14. Koranyi, E.K. and Lehmann.: Experimental sleep deprivation in schizophrenic patients. Arch. Gen. Psychiat. 2:534, 1960.

15. Ladame, C. (1923) Schweiz. Arch. Neurol. Psychiat., 13, 371.

16. Luby, E.D., et al.: Biochemical, psychological and behavioral responses to sleep deprivation. Ann. N.Y. Acad. Sci. 96:71.

17. Macleod, J.J.R.: Physiology in Modern Medicine. ed. 9, Henry Kimpton, London, 1941.

18. Main, R.J. and Richardson, A.W.: Physiology. ed. 2, Mosby, St. Louis, 1953.

19. Martin, I. and Davies, B.M.: Sleep thresholds in depression. J. Ment. Sci. 108:466, 1962.

20. McGhie, A. and Russell, S.M.: The subjective assessment of normal sleep patterns. J. Ment. Sci. 108 :642, 1962.

21. Murray, E.J., Williams, H.L., and Lubin, A.: Body temperature and psychological ratings during sleep deprivation. J.Exp. Psychol. 56:271, 1958.

22. Murray, E.J., Schein, E.H., Erikson, K.T., Hill, W.F. and Choen, M.: The effects of sleep deprivation on social behavior. J. Social Psychol. 49:229, 1959.

23. Patrick, G.T.W. and Gilbert, J.A.: On the effects of loss of sleep. Psychol. Review No. 3, pp 469-483, 1896.

24. Rodin, E.A., Luby, E.D. and Gottlieb, J.S.: The electroencephalogram in experimental sleep deprivation. Electroenceph. Clin. Neurophysiol. 14:544, 1962.

25. Schein, E.H.: Effects of sleep deprivation on performance in a simulated communication task. J. Appl. Psychol. 41:247, 1957.

26. Shagass, C. and Mihalik, J.: An objective test which differentiates between neurotic and psychotic depression. AMA Arch. Neuro. Psychiat. 75:461, 1956.

27. Shagass, C. and A.B. Kerenyi, The sleep threshold. A simple form of the sedation threshold for clinical use. Canad. Psychiat. Assoc. J. 3, 101-209 (1958).

28. Shagass, C.: The sedation threshold, a method for estimating tension in psychiatric patients. EEG and Clin. Neurophysiol. 6:221, 1954.

29. Shagass, C. and Naiman, J.: The sedation threshold as an objective index of manifest anxiety and psychoneurosis. J. Psychosomatic Res. 1:49, 1956.

30. Tyler, D.B.: Psychological changes during experimental sleep deprivation. Dis. Nerv. Syst. 16:293, 1955.

31. Tyler, D.B., Goodman, J. and Rothman, T.: The effect of experimental insomnia on the rate of potential changes in the brain. Am. J. Physiol. 1949:185,1947.

32. Warren, N. and Clark, B.: Blocking in mental and motor tasks during a 65 hour vigil. J.Exp. Psychol. 21:97. 1937.

33. Weiss, H.R., Kasinoff, B.H. and Bailey, M.A.: An exploration of reported sleep disturbance. J. Nerv. Ment. Dis. 134:528, 1962.

34. West, L.J., Janszen, H.H., Lester, B.K. and Cornelisoon, F.S.: The psychosis of sleep deprivation. Ann. N.Y. Acad. Sci., 96:66, 1962.

35. Williams, H.L. Granda, A.M., Jones, R.C., Lubin, A. and Armington, J.C.: EEG frequency and finger pulse volume as predictors of reaction time during sleep loss. Electroenceph. Clin. Neurophysiol. 14:64, 1962.

36. Williams, H.L., Lubin, A. and Goodnow, J.J. Impaired performance with acute sleep loss. Psychol. Monogr. 73:1. 1959.

37. Dement, W: The effect of dream deprivation. Science 131:1705, 1960

38. Detre, Davis,J.,Spalding, P. : private communication.

SUGGESTED READING

1. Shneidman, Edwin S. and Farberow, Norman L.: Clues to Suicide. Blakiston Division, McGraw Hill, Inc., New York, 1957.

2. Shneidman, Edwin S. and Farberow, Norman L.: The Cry for Help. Blakiston Division, McGraw Hill, Inc., New York, 1961.

QUESTIONAIRE	COL. #	CODING
How has your sleep been over the years? Have you noticed any changes? When was the first time you noticed these changes?...what happened first ...what happened then...	1)	Before: good fair poor
	2)	Sleep change: no yes
		Type of disturbance:
	3)	Difficulty falling asleep: no yes
	4)	Awakening at night: no yes
	5)	Early morning waking: no yes
	6)	When:
Has your bedtime changed?	7)	-3 or more hours (earlier) *½ hrs. -2 hrs. *1 hr. -1 hr. *2 hrs. -½ hr. *3 or more hr no change
Has there been any change in the length of time it takes you to fall asleep? (specify)	8)	same as 2
	9)	since when?
Have you noticed any change in how soundly you sleep?	10)	no yes
	11)	since when?
At one time, were you usually able to sleep through the night? Has this changed?	12)	no yes
	13)	no yes
	14)	since when?
Have you noticed any change in waking at night?...or in the number of times you wake in the night?	15)	awake less no change awake one more time than used to awake 2 times more awake 3 times more awake 4* times more
Do you awake shortly after you go to sleep?...in the middle of the night?...or early in the morning?	16)	early middle late
	17)	early middle
	18)	middle late
	19)	early only
	20)	middle only
	21)	late only
When you wake, do you get up?	22)	no yes
Over the years, have you usually dreamed? Has the frequency of your dreaming changed? Has the type of dream changed? Do dreams wake you now when they didn't before?	23)	never dreamed at any time dreams less frequently now dreams more frequently now dreams same frequency now
	24)	no change in type dreams more frightening or unpleasant dreams less frightening and more pleasant
	25)	no yes

QUESTIONAIRE	COL. #	CODING
Have you noticed any change in the time you awaken in the morning?	26)	same as 2
Have you noticed any change in whether you take naps during the day (or how long the naps are, or how many you take)?	27)	no naps take naps now takes longer or more frequent naps same number of naps
Have you been taking any medication during the last 6 months, either for your sleeping difficulty, or for other psychiatric reasons?	28) 29) 30)	what medication why when
If the patient has had several types of sleep disturbance, find out which started first, which started second, etc.; or did they start simultaneously; or, is there any relation of sleep change to dream change.	31) 32) 33) 34) 35) 36)	if sleep disorder present, order of start which disorder first if DFA first, what second if EMW first, what second if A.N. first, what second if dream change, relation to sleep change
Has the patient made a genuine suicide attempt?...or a suicidal gesture?...has he made a suicidal attempt or gesture in the past?	37) 38)	genuine attempt questionable attempt gesture no attempt history: no yes
How depressed is the patient?	39)	severe moderate mild very mild none
How much conceptual disorganization does the patient show?	40)	severe moderate mild very mild none

DATA SHEET

41) Age:

42) Religion:

43) Marital Status:

44) Method of Attempt:

45) Diagnosis:

Mental Status on Admission to Hospital

46) Phobias
47) Compulsivity or obsessions
48) Hypochondriasis or somatization
49) Conversion symptoms
50) Histrionic behavior
51) Rule breaking behavior
52) Poor social adjustment
53) Sexual thoughts
54) Inappropriate sexual activity
55) Overtly aggressive behavior
56) Verbal hostility or negativism
57) Addictions or alcoholism
58) depressed mood
59) elevated mood
60) retardation
61) lack of initiative
62) hyperactivity
63) isolation
64) withdrawal
65) regressive behavior
66) paranoid thoughts
67) bizarre speech or behavior
68) delusions
69) hallucinations
70) disorientation or confusion
71) intellectual impairment
72) Speech impairment
73) seizures
74) physical illness

75) Hospital code
76) Identification number
77) " "
78) " "
79) Sex

COL. #

1. 0 poor
   1 fair
   2 good
   3 N.A.

2. 0 yes
   1 no
   2 N.A.

3. 0 yes
   1 no
   2 N.A.

4. 0 yes
   1 no
   2 N.A.

5. 0 yes
   1 no
   2 N.A.

6. 0 0-1 week
   1 2-3 weeks
   2 4-6 weeks
   3 7-12 weeks
   4 3-6 months
   5 7-12 months
   6 1-2 years
   7 2 or more years
   8 no change
   9 N.A.

7. 0 -3 hours
   1 -2 hours
   2 -1 hour
   3 -½ hour
   4 no change
   5 +½ hour
   6 +1 hour
   7 +2 hours
   8 +3 hours
   9 N.A.

8. 0 -3 hours
   1 -2 hours
   2 -1 hour
   3 -½ hour
   4 no change
   5 +½ hour
   6 +1 hour
   7 +2 hours
   8 +3 hours
   9 N.A.

9. 0 0-1 week
   1 2-3 weeks
   2 4-6 weeks
   3 7-12 weeks
   4 3-6 months
   5 7-12 months
   6 1-2 years
   7 2 or more years
   8 no change
   9 N.A.

10. 0 yes
    1 no
    2 N.A.

11. same as 9

12. 0 yes
    1 no
    2 N.A.

13. 0 yes
1 no
2 N.A.

14. same as 9

15. 0 less
1 no change
2 ≠1
3 ≠2
4 ≠3
5 ≠4
6 N.A.
7 awakens once, cannot get back to sleep

16. same as 15

17. same as 15

18. same as 15

19. same as 15

20. same as 15

21. same as 15

22. 0 yes
1 no
2 N.A.

23. 0 less
1 no dreams
2 more dreams
3 same # dreams
4 N.A.

24. 0 no change
1 more unpleasant
2 more pleasant
3 N.A.

25. 0 yes
1 no
2 N.A.

26. 0 -3 hours
1 -2 hours
2 -1 hour
3 $-\frac{1}{2}$ hour
4 no change
5 $\neq\frac{1}{2}$ hour
6 ≠1 hour
7 ≠2 hours
8 ≠3 hours
9 N.A.

27. 0 longer naps
1 naps now
2 no naps
3 same # naps
4 N.A.

28. 0 sedative ≠ sed. tranquillizer
1 sedative
2 sedative tranquillizer
3 non-sedative tranquillizer
4 anti-depressant ≠ tranquillizer
5 anti-depressant ≠ sedative
6 anti-depressant alone
7 other medication
8 none
9 N.A.

29. 0 nervousness, tenseness
1 no sleep
2 nervousness ≠ no sleep
3 depression
4 depression ≠ no sleep
5 depression ≠ nervousness
6 other
7 N.A.

30. 0 0-1 week
1 2-3 weeks
2 4-6 weeks
3 7-12 weeks
4 3-6 months
5 7-12 months
6 1-2 years
7 2 or more years
8 sporadically
9 N.A.

31.
0 all at once (certain)
1 all at once (uncertain)
2 probable ordered change
3 only 1 disorder
4 no change
5 N.A.

32.
0 difficulty falling asleep
1 early waking
2 awakening at night
3 D.F.A. ≠ A.N.
4 D.F.A. ≠ E.M.W.
5 ↓soundness
6 ↓soundness ≠ D.F.A.
7 ↓soundness ≠ A.N.
8 other
9 N.A.

33.
0 A.N.
1 E.M.W.
2 ↓soundness
3 A.N. ≠ ↓soundness
4 A.N. ≠ E.M.W.
5 D.F.A. ≠ ↓soundness
6 all together
7 no other disturbance
8 N.A.

34.
0 A.N.
1 D.F.A.
2 ↓soundness
3 A.N. ≠ ↓soundness
4 A.N. ≠ D.F.A.
5 D.F.A. ≠ ↓soundness
6 all together
7 no other disturbance
8 N.A.

35.
0 D.F.A.
1 E.M.W.
2 ↓soundness
3 D.F.A. ≠ E.M.W.
4 D.F.A. ≠ ↓soundness
5 E.M.W. ≠ ↓soundness
6 all together
7 no other disturbance
8 N.A.

36.
0 dream change precede sleep change
1 dream change follow sleep change
2 no change in sleep or dreams
3 dream change--no sleep change
4 sleep change--no dream change
5 dream and sleep change simultaneous
6 dream change--sleep change unknown sequence
7 N.A.

37.
0 attempt and history
1 attempt--no history
2 questionable attempt ≠ history
3 questionable attempt-- no history
4 gesture ≠ history
5 gesture--no history
6 no attempt ≠ history
7 no attempt
8 N.A.

38.
0 yes
1 no
2 N.A.

39.
0 severe
1 moderate
2 mild
3 very mild
4 none
5 N.A.

40.
0 severe
1 moderate
2 mild
3 very mild
4 none
5 N.A.

41.
0 0-20

1 21-30
2 31-40
3 41-50
4 51-60
5 61-70
6 71-80
7 N.A.

42. 0 R.C.
1 Prot.
2 Prot. Fundamental
3 Jewish
4 Russian orthodox, Greek orthodox
5 other
6 none
7 N.A.

43. 0 married
1 widowed & remarried
2 widowed
3 divorced & remarried
4 single
5 divorced or separated
6 N.A.

44. 0 pills
1 wrists only
2 wrists and throat
3 hanging
4 more than 1 of above
5 other
6 pills and other
7 no attempt
8 N.A.

45. 0 Acute Schizophrenia
1 Chronic Psychoses
2 Schizo-affective--Psych-Involutional Depression
3 Manic Depressive, Psychosis
4 Psycho-Neurotic Depression Reactive Depression
5 Character disorder with depression
6 Character disorder
7 Chronic Alcoholism--Chronic Brain Syndrome
8 Acute Brain Syndrome
9 Other

46. 0 yes
1 no
2 N.A.

47. - 56. Same as # 46.

57. 0 Drug Addiction
1 Drug Addiction and Alcohol
2 Alcohol
3 None
4 N.A.

58. - 69. Same as # 46.

70. 0 Disorientation
1 Disorientation - Confusion
2 Confusion
3 None
4 N.A.

71. - 74. Same as # 46.

75. 0 Fairfield
1 Middletown
2 Norwich
3 Tompkins 1
4 N.A.

76. Identification number

77. Identification number

78. Identification number

79. 0 Male
1 Female
2 N.A.

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